



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,640	07/19/2001	Andreas Muhlebach		7149

324 7590 10/28/2003

CIBA SPECIALTY CHEMICALS CORPORATION
PATENT DEPARTMENT
540 WHITE PLAINS RD
P O BOX 2005
TARRYTOWN, NY 10591-9005

EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,640

Applicant(s)

MUHLEBACH ET AL.

Examiner

Tatyana Zalukaeva

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-6 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 4 and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al (U.S. 5,789,487) in view of Ueda et al (Macromolecules Vol. 31, No.3, 02, 1998, pp 557-62).

Matyjaszewski discloses an ATRP wherein block or graft (co)polymers **with well defined molecular architecture and narrow polydispersity index**, in the presence of an initiating system comprising (i) an initiator having a radically transferable atom or group, (ii) a transition metal compound, and (iii) a ligand; the present invention is also directed to the synthesis of a macromolecule having **at least two halogen groups which can be used as a macroinitiator component** (i) to subsequently form a block or graft copolymer by an atom or group transfer radical polymerization process (abstract). Preferred initiators include C1 -C6 -alkyl esters of a 2-halo-C1 -C6 -carboxylic acid (such as 2-chloropropionic acid, 2-bromopropionic acid, 2-chloroisobutyric acid, 2-bromoisobutyric acid, etc.) (col. 10, lines 11-22).

In a synthesis of macroinitiator an example is the polyesterification of a diol (1.0 mol) with a diacid (0.95 mol) in the presence of 2-bromopropionic acid or chloroacetic acid (0.05 mol) to produce a polyester having a degree of polymerization (DP)=20 and .alpha.-halogen end group is provided in col. 17, lines 15-20.

Matyjaszewski teaches the process of ATRP using a concept of halogenated macroinitiator that participate formation of end groups of resulting block copolymers. The disclosure of Matyjaszewski differs from the instant claims by not specifically disclosing radicals of trihydric or tetra- or pentahydric alcohols, or radicals of fully or partially acylated aldose, ketose or disaccharide. However, Matyjaszewski teaches the synthesis of multifunctional polymers which can be further used for the synthesis of block and graft polymers. Thus, Matyjaszewski motivates a person skilled in the art to employ compounds of multiple functionality in the synthesis of his polymers.

Ueda discloses living radical polymerization initiated by initiation system comprising di- or trifunctional dichloroacetates synthesized from corresponding multifunctional alcohols and Ru compounds in the presence of aluminum, compounds (abstract). The production of multiarmed polymers with controlled molecular weight and narrow polydispersity is accomplished. The components of such macroinitiators corresponding to those obtained from trihydric alcohols are shown as a structure 3a page 559.

Since both Ueda and Matyjaszewski disclose living radical polymerization with the goal to obtain well defined architecture, low polydispersity polymers, a person skilled in the art motivated by the teaching of Matyjaszewski would have found it obvious to utilize polyesters obtained from trihydric alcohols of Ueda in lieu of those obtained from dihydric alcohols of Matyjaszewski in order to induce more branching without sacrificing

the architecture and polydispersity in the ATRP polymers of Matyjaszewski, and thus to arrive at the instantly claimed subject matter.

Response to Arguments

3. Applicant's arguments filed August 06, 2003 have been fully considered but they are not persuasive. Applicants' arguments reside in contention that Matyjaszewski fails to teach branched polymers, such as these resulting from polymerization with branched initiator molecules. In response to this, Applicants' attention is drawn to col. 20, lines 51-60, wherein the **hyperbranched polymers** are described, and also to col. 22, scheme 5, wherein such hyperbranched polymer is presented. In col.22, starting from line 52 branched polymers are described that are obtained by copolymerization of a branched monomer of formula (IV) with conventional vinyl monomer. It is further noted that the instant claims call for "block copolymer or polymer", and in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., branched polymer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicants further argue that Matyjaszewski fails to teach polymers that result from branched initiator molecules, that are obtainable by a previous step of esterification of tri-, tetra, and pentahydric alcohols with an initiator haloacid. In response to this, Applicants attention is drawn to

Art Unit: 1713

an abstract of the disclosure of Matyjaszewski, wherein it is said that the invention is directed to a synthesis of a macro-initiator **having at least two halogen groups**, and Applicants are further reminded that disclosed examples and preferred embodiments do not constitute a teaching away from a **broader disclosure or non-preferred embodiments**. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, **including non-preferred embodiments**. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir.1998). It is further noted, that the instant claims call for polymers, and the method of making the intermediate product suitable to obtain such polymers (macroinitiators) does not impact the patentability of the polymers per se. With regard to Ueda's reference, Applicants arguments reside in contention that by replacing the linear initiator of Matyjaszewski by the branched initiators of Ueda, will not result in polymers as instantly claimed. This is not found persuasive for at least two reasons:

- It is the Examiner's position that Matyjaszewski generically teaches branched macroinitiators (see abstract), and that the disclosed example does not interfere with generic teaching. Macroinitiators of Ueda were not used to "replace" the alleged linear macroinitiators of Matyjaszewski, but rather to show that the

species disclosed by Ueda are within the genus of macroinitiators generically disclosed by Matyjaszewski, i.e. those having at **least two halogen** groups.

- The production of multiarmed polymers with controlled molecular weight and narrow polydispersity is accomplished by Ueda. The components of macroinitiators used for synthesis of such polymers corresponding to those obtained from **trihydric alcohols** are shown as a structure 3a page 559. These are initiators that are identical to those denoted by R2 in the instant claim 1. Therefore, Applicants statement that the initiators of Ueda, shown by 3a will not give rise to the polymers analogous to those instantly claimed is not persuasive.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1713

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.


Tatyana Zalukaeva, Ph.D.
Primary Examiner
Art Unit 1713

October 22, 2003